

REMARKS

Claims 1-23 are pending in the application.

Claims 1-23 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over various cited combinations of Chen (U.S. Patent No. 5,356,478), Cotte (U.S. Patent No. 4,654,869), Goffnett (U.S. Patent No. 5,108,512), and Smith (U.S. Patent No. 5,417,768). The Examiner is reminded by direction to MPEP § 2143 that a proper obviousness rejection has the following three requirements: 1) there must be some suggestion or motivation to modify or combine reference teachings; 2) there must be a reasonable expectation of success; and 3) the combined references must teach or suggest all of the claim limitations. Claims 1-23 are allowable over the various cited combinations of Chen, Cotte, Goffnett and Smith for at least the reasons that the references, individually or as combined fail to disclose or suggest each and every element in any of those claims, and fail to provide motivation for modification.

With respect to claim 1, such recites a method of cleaning a processing chamber by contacting residue material over at least one internal chamber surface with a supercritical fluid, where the residue is formed during one or more processing events conducted within the processing chamber. As discussed in applicant's previous response, Cotte specifies placement of objects to be cleaned into a vessel or chamber that is designed particularly for such cleaning purposes (Fig. 1 and col. 2, ll. 37-65). As acknowledged by the Examiner at page 2 of the present Action, Chen fails to disclose or suggest use of supercritical fluid for cleaning residues from walls of chambers. Accordingly, the combination of Chen and Cotte fails to disclose or suggest the claim 1 recited removing residue material from over at least one internal chamber surface utilizing supercritical fluid in the processing chamber.

Applicant notes that the Chen disclosure specifically indicates cleaning various chamber surfaces utilizing plasma treatment and indicates complete removal by such technique (summary of the invention and abstract sections). Accordingly, such reference does not provide motivation for modification. In combination with Cotte, which specifies utilization of a chamber particularly designed for cleaning purposes, motivation for combination as set forth by the Examiner is lacking. The Federal Circuit has indicated with respect to the motivation element to support a *prima facie* obviousness rejection, that the factual inquiry to combine or modify must be based on objective evidence of record (see *In re Lee* 61 USPQ 2d 1430 (Fed. Cir. 2002); and *In re Fritch* 23 USPQ 2d 1780, 1783 (Fed. Cir. 1992)). The Court has indicated that the factual question of motivation is material to patentability and cannot be resolved on subjective belief and unknown authority and stated that deficiencies of cited references cannot be remedied by general conclusions about what is basic knowledge or common sense but must be based on evidence. In the instant case the record is void of any evidence to support motivation to modify the techniques of Chen to produce the claim 1 recited method utilizing providing supercritical fluid in a processing chamber to remove residue material by contacting the residue material over at least one internal chamber surface where the residue was deposited upon the surface during one or more processing event conducted within the processing chamber. The disclosure of a specific cleaning chamber as set forth by Cotte does not contribute toward the motivation element. Accordingly, claim 1 is not rendered obvious by the combination of Cotte and Chen.

Referring to the Smith disclosure such also discloses placement of work pieces to be cleaned within a vessel specifically designed for the particular cleaning purpose (see

drawings and text at col. 3, ll. 35-51 and col. 4, ll. 38-39). The Examiner indicates at page 5 of the present action that Smith is relied upon as disclosing removal of residue by treatment with a primary solvent followed by supercritical carbon dioxide. However, when considered in combination with Cotte and Chen, the Smith disclosure of cleaning objects within a vessel particularly configured for such cleaning fails to contribute toward suggesting the claim 1 recited cleaning residue or material from internal surfaces of a processing chamber. Accordingly, the combination of Cotte, Chen and Smith fails to suggest each and every element in claim 1. Further, the Smith disclosure does not contribute toward providing a motivation for modification as suggested by the Examiner.

With respect to Goffnett the Examiner indicates reliance upon such disclosure as teaching a method of removing material from a surface of a CVD chamber. The Examiner states that because it is known in the art to clean a CVD chamber, one would expect that supercritical fluid would remove residue in the CVD chamber because Cotte discloses removal of organic and inorganic residue. Applicant notes however that the Goffnett disclosure specifies utilization of solid carbon dioxide particles to dislodge deposits from chamber walls (col. 3, ll. 7-36) and again notes that Cotte indicates utilization of a specially designed cleaning apparatus for cleaning objects placed therein. Accordingly, Goffnett does not contribute towards suggesting the claim 1 recited cleaning processing chamber surfaces utilizing a supercritical fluid to remove residue from surfaces where the residue was deposited during one or more processing event conducted within the processing chamber. Nor does Goffnett provide motivation for the modification as suggested by the Examiner. Accordingly, the various cited combinations of Cotte, Chen, Goffnett and Smith fail to disclose or suggest each and every element of claim 1 and fail to provide a

motivation for modification. Claim 1 is therefore not rendered obvious by the cited combination of references.

Dependent claims 2-15 are allowable over the various cited combinations of Chen, Cotte, Smith and Goffnett for at least the reason that they depend from allowable base claim 1.

Independent claim 16 recites providing a cleaning agent comprising carbon dioxide into a deposition system where the carbon dioxide comprises at least one of liquid phase and supercritical phase. Claim 16 further recites contacting deposited material on internal surfaces of the deposition system to form a solubilized fraction and removing the solubilized fraction. Independent claim 16 is allowable over the various cited combinations of Chen, Goffnett, Smith and Cotte for at least reasons similar to those discussed above with respect to independent claim 1.

Dependent claims 17-23 are allowable over the various cited combinations of Smith, Chen, Goffnett and Cotte for at least the reason that they depend from allowable base claim 16.

For the reasons discussed above, pending claims 1-23 are allowable. Accordingly, applicant respectfully requests formal allowance of such pending claims in the Examiner's next action.

Respectfully submitted,

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By: Jennifer J. Taylor
Jennifer J. Taylor, Ph.D.
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